

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference P985PC00	<b>FOR FURTHER ACTION</b> see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/DK2004/000799	International filing date (day/month/year) 18/11/2004	(Earliest) Priority Date (day/month/year) 19/11/2003
Applicant  KRAEFTENS BEKAEMPELSE		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 9 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

## 1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. ☒ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☒ **Certain claims were found unsearchable** (See Box II).

3. ☒ **Unity of invention is lacking** (see Box III).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. \_\_\_\_\_

☐ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

- b. ☒ none of the figures is to be published with the abstract.

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## Box No. I Nucleotide and/or amino acid sequence(s) (Continuation of item 1.b of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, the international search was carried out on the basis of:
  - a. type of material
    - ☒ a sequence listing
    - ☐ table(s) related to the sequence listing
  - b. format of material
    - ☒ in written format
    - ☒ in computer readable form
  - c. time of filing/furnishing
    - ☒ contained in the international application as filed
    - ☐ filed together with the international application in computer readable form
    - ☐ furnished subsequently to this Authority for the purpose of search
2. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
3. Additional comments:

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## Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 37 (in part), 67 (in part), 70  
because they relate to subject matter not required to be searched by this Authority, namely:  
see FURTHER INFORMATION sheet PCT/ISA/210
2. ☐ Claims Nos.: 37 (in part), 67 (in part), 70  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:  
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☒ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:  
1-83, all in part and insofar as applicable
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

### Remark on Protest

- ☒ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

## Continuation of Box II.1

Although claims 66, 81, 82 are directed to a diagnostic method practised on the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.

Although claims 71-75 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

Invention 1, claims 1-5, 7, 10, 11, 13, 16-23, 31-83 all in part and insofar as applicable

An MHC Class I-restricted epitope peptide derived from a protein of the Bcl-2 family, said peptide being selected from the group consisting of SEQ ID NOs: 1-11 and 40-64, respectively; A composition or pharmaceutical composition comprising such peptide; A complex of such peptide and a Class I HLA molecule; A method for detecting the presence of said protein of the Bcl-2 family using such complex; Antibodies binding to such peptide; uses of such peptide or composition for the preparation of a medicament for the treatment of cancer. All relating to SEQ ID NO: 1 (ALVGACITL), a peptide fragment of Bcl-2.

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Inventions 2-36, claims 1-83 all in part and insofar as applicable

As for invention 1 but relating to SEQ ID NOs: 2-11 and 40-64, respectively.

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## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61K38/17 A61P35/00 C07K14/47 C07K16/18 G01N33/574  
G01N33/68

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61K C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, BIOSIS, Sequence Search

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	AKATSUKA YOSHIKI ET AL: "Identification of a polymorphic gene, BCL2A1, encoding two novel hematopoietic lineage-specific minor histocompatibility antigens." JOURNAL OF EXPERIMENTAL MEDICINE, vol. 197, no. 11, 2 June 2003 (2003-06-02), pages 1489-1500, XP002321649 ISSN: 0022-1007 the whole document	1-5, 7-11, 13-24, 31-43, 48-69, 71-83
Y	----- -/--	44-47



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

## \* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

19 October 2005

Date of mailing of the international search report

21 NOV 2005

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Madruga, J

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
D7 X	US 5 856 171 A (KORSMEYER ET AL) 5 January 1999 (1999-01-05)  columns 32-34; sequences 21,24	1-5, 7-11, 13-24, 31-43, 48-62, 67,68, 71-82
D3 X	WO 98/58541 A (DANA-FARBER CANCER INSTITUTE, INC; NOVARTIS AG) 30 December 1998 (1998-12-30)  page 15, paragraph 2; claims; figures; examples; table 1; sequences 3,4 page 29, line 22 - page 31, line 16 page 33, line 5 - page 36, line 23	1-5, 7-11, 13-15, 31-37, 76-78, 81,82
D4 Y	SCHMIDT S M ET AL: "Survivin is a shared tumor-associated antigen expressed in a broad variety of malignancies and recognized by specific cytotoxic T cells" BLOOD, W.B.SAUNDERS COMPANY, ORLANDO, FL, US, vol. 102, no. 2, 15 July 2003 (2003-07-15), pages 571-576, XP002283858 ISSN: 0006-4971 the whole document	44-47
A	FINNEGAN N M ET AL: "Induction of apoptosis in prostate carcinoma cells by BH3 peptides which inhibit Bak/Bcl-2 interactions" BRITISH JOURNAL OF CANCER, LONDON, GB, vol. 85, no. 5, May 2001 (2001-05), pages 115-121, XP002978948 ISSN: 0007-0920 the whole document	
A	SHANGARY S ET AL: "Recent advances in the development of anticancer agents targeting cell death inhibitors in the Bcl-2 protein family." LEUKEMIA (BASINGSTOKE), vol. 17, no. 8, August 2003 (2003-08), pages 1470-1481, XP002321650 ISSN: 0887-6924 cited in the application the whole document	

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	RENKVIST N ET AL: "A listing of human tumor antigens recognized by T cells" CANCER IMMUNOLOGY AND IMMUNOTHERAPY, BERLIN, DE, vol. 50, no. 1, March 2001 (2001-03), pages 3-15, XP002274524 ISSN: 0340-7004 the whole document -----	
A	HIROHASHI Y ET AL: "An HLA-A24-restricted cytotoxic T lymphocyte epitope of a tumor-associated protein, survivin" CLINICAL CANCER RESEARCH, THE AMERICAN ASSOCIATION FOR CANCER RESEARCH, US, vol. 8, no. 6, June 2002 (2002-06), pages 1731-1739, XP002283856 ISSN: 1078-0432 the whole document -----	
22 T	ANDERSEN MAD S HALD ET AL: "Immunogenicity of Bcl-2 in patients with cancer." BLOOD. 15 JAN 2005, vol. 105, no. 2, 15 January 2005 (2005-01-15), pages 728-734, XP002321651 ISSN: 0006-4971 the whole document -----	1-5,7, 10,11, 13, 16-23, 31-69, 71-83
25 P,X	NISHIDA TETSUYA ET AL: "Clinical relevance of a newly identified HLA-A24-restricted minor histocompatibility antigen epitope derived from BCL2A1, ACC-1, in patients receiving HLA genotypically matched unrelated bone marrow transplant." BRITISH JOURNAL OF HAEMATOLOGY, vol. 124, no. 5, March 2004 (2004-03), pages 629-635, XP002321652 ISSN: 0007-1048 the whole document -----	1-5,7, 10,11, 13, 16-21, 31-37, 43, 61-63, 66, 76-78, 81-83
26 P,X	WO 2004/067023 A (SURVAC A/S; STRATEN, EIVIND, PER, THOR; ANDERSEN, MAD S, HALD) 12 August 2004 (2004-08-12)  page 13, line 25 - page 14, line 16; claims ----- -/--	1-5,7, 10,11, 13, 16-23, 31-69, 71-83

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>SAETERDAL I ET AL:  "FRAMESHIFT-MUTATION-DERIVED PEPTIDES AS  TUMOR-SPECIFIC ANTIGENS IN INHERITED AND  SPONTANEOUS COLORECTAL CANCER"  PROCEEDINGS OF THE NATIONAL ACADEMY OF  SCIENCES OF USA, NATIONAL ACADEMY OF  SCIENCE. WASHINGTON, US,  vol. 23, no. 98,  6 November 2001 (2001-11-06), pages  13255-13260, XP001084195  ISSN: 0027-8424  page 13256, left-hand column, paragraph 2  page 13260, right-hand column, paragraph 2</p>	<p>1, 10, 58,  61-63,  66, 71</p>
X	<p>US 5 470 955 A (CRAIG ET AL)  28 November 1995 (1995-11-28)</p> <p>the whole document</p>	<p>1-5,  9-11, 15,  16, 24,  37, 41,  48-62,  66-68,  70-81</p>
X	<p>WO 01/36594 A (DARTMOUTH COLLEGE; CRAIG,  RUTH, W; BINGLE, COLIN, D; WHYTE, MOIRA)  25 May 2001 (2001-05-25)</p>	<p>1-5,  9-11, 15,  16, 24,  37, 41,  48-62,  66-68,  70-81</p>
A	<p>REED J C: "Bcl-2 family proteins"  ONCOGENE, BASINGSTOKE, HANTS, GB,  vol. 17, no. 25,  24 December 1998 (1998-12-24), pages  3225-3236, XP002290420  ISSN: 0950-9232  cited in the application  the whole document</p>	

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/DK2004/000799

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5856171	A	05-01-1999	AU 688368 B2 12-03-1998
			AU 7604994 A 21-03-1995
			BR 9407583 A 07-01-1997
			CA 2170143 A1 02-03-1995
			EP 0722275 A1 24-07-1996
			JP 9502088 T 04-03-1997
			JP 2000336100 A 05-12-2000
			NZ 271929 A 25-03-1998
			WO 9505750 A1 02-03-1995
WO 9858541	A	30-12-1998	NONE
WO 2004067023	A	12-08-2004	AU 2004208469 A1 12-08-2004
US 5470955	A	28-11-1995	NONE
WO 0136594	A	25-05-2001	AU 3471200 A 30-05-2001